



A REPORT  
TO THE  
MONTANA  
LEGISLATURE

PERFORMANCE AUDIT

*Board of Oil and Gas  
Conservation Regulatory  
Program*

*Board of Oil and Gas Conservation*

SEPTEMBER 2011

LEGISLATIVE AUDIT  
DIVISION

11P-04

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**PERFORMANCE AUDITS**

Performance audits conducted by the Legislative Audit Division are designed to assess state government operations. From the audit work, a determination is made as to whether agencies and programs are accomplishing their purposes, and whether they can do so with greater efficiency and economy.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Members of the performance audit staff hold degrees in disciplines appropriate to the audit process.

Performance audits are performed at the request of the Legislative Audit Committee which is a bicameral and bipartisan standing committee of the Montana Legislature. The committee consists of six members of the Senate and six members of the House of Representatives.

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September 2011

The Legislative Audit Committee  
of the Montana State Legislature:

This is our performance audit of the Board of Oil and Gas Conservation's processes related to regulating the oil and natural gas industry. The report presents audit findings and makes recommendations for improving efficiency and effectiveness of inspection practices, enforcement processes, and data management. Implementing these recommendations will ultimately strengthen overall management of board operations.

We wish to express our appreciation to the board and its staff for their cooperation and assistance throughout the audit.

Respectfully submitted,

*/s/ Tori Hunthausen*

Tori Hunthausen, CPA  
Legislative Auditor

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## APPOINTED AND ADMINISTRATIVE OFFICIALS

		<u>Term</u>	<u>Expires</u>
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	Wayne Smith, Vice Chair, Industry Representative samplecatcher@yahoo.com	Valier	1/1/13
	Don Bradshaw, Industry Representative spudman37@mailstation.com	Fort Benton	1/1/13
	Ronald S. Efta, Public Member and Attorney wcaefta@middrivers.com	Wibaux	1/1/15
	Jay Gunderson, Public Member jaygun87@msn.com	Billings	1/1/13
	Jack King, Industry Representative jking@hancock-enterprises.com	Billings	1/1/15
	Bret Smelser, Landowner without Mineral Rights sunrise_bret@hotmail.com	Sidney	1/1/15
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<b>Administrative Officials</b>	Mary Sexton, Director, Department of Natural Resources and Conservation		

# MONTANA LEGISLATIVE AUDIT DIVISION

## PERFORMANCE AUDIT Board of Oil and Gas Conservation Regulatory Program Board of Oil and Gas Conservation

SEPTEMBER 2011

11P-04

REPORT SUMMARY

The Board of Oil and Gas Conservation must improve its inspections and enforcement processes to more effectively regulate the state's 17,600 active oil and gas wells.

### Context

The Board of Oil and Gas Conservation and its staff in the Oil and Gas Conservation Division regulate oil and natural gas development in Montana. Their work helps protect the petroleum resource, property owners, the environment, taxpayers, and oil and gas operators. The governor appoints the seven members of the board. The board and division is administratively attached to the Department of Natural Resources and Conservation.

The board is the policy setting and rulemaking entity. Administrative functions are the responsibility of the division. Division staff issue permits; classify wells; issue and carry out board orders; conduct field inspections; require performance bonds for site restoration; and maintain a repository of administrative, technical and geologic information about these wells.

Audit work reviewed the regulatory activities of the board and division. In addition, we examined the controls used to ensure integrity and accuracy of the Oil and Gas Information System, a database of well information.

### Results

Under the supervision of the Board of Oil and Gas Conservation, division management should generally provide more formalized

direction to division staff for inspection and enforcement activities.

For the regulatory processes, the division's permitting and abandonment processes appear sound, while improvements are necessary for the inspections and enforcement processes.

Although faced with a large number of wells to inspect, audit work found the division lacks a formalized approach to their work. The division should create formal inspection priorities, develop documented inspection procedures, improve inspection documentation, and consistently document field deficiencies and violations.

When inspectors identify a violation, the board and division collaborate with the operator to gain compliance. The division could improve its compliance rate, and lessen the number of unresolved violations, by applying existing compliance timelines and creating additional ones.

The division could improve management of the Oil and Gas Information System in the areas of segregation of duties, security planning, password policies, and disaster recovery planning.

*(continued on back)*

Recommendation Concurrence	
Concur	7
Partially Concur	0
Do Not Concur	0
<b>Source: Agency audit response included in final report.</b>	

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# Chapter I – Introduction

## Introduction

In 1953, the Legislature created the Board of Oil and Gas Conservation (board). The board is administratively attached to the Department of Natural Resources and Conservation. Statutory purpose of the board and its staff in the Oil and Gas Conservation Division (division) is to regulate oil and natural gas exploration, and development operations that occur in Montana. Regulation occurs by requiring drilling permits, classifying wells, disseminating board orders that establish well spacing and other drilling requirements, conducting field inspections, and requiring performance bonds to ensure site restoration. In addition to regulatory duties, the division also maintains a repository of administrative, technical and geologic information about these wells. The board and its staff oversee regulation of more than 43,000 wells, of which 17,600 are in various stages of production.

## Audit Scope

We reviewed general management activities, business processes, and regulatory practices of the board and its staff, as well as controls used to ensure integrity and accuracy of the Oil and Gas Information System. This system is a database used to aid in the board's regulatory role and also functions as an electronic repository of production information.

The audit examined the statutory role and responsibilities of the board, and the administrative operations of the division. Areas of operation examined included drilling permits, field inspections, enforcement activities, bond administration, well abandonment, and report filing. The division monitors both regular and underground injection wells. Ninety five percent of active wells are regular wells and five percent are underground injection wells. Since most division activities relate to regular wells, audit work focused in this area. Audit work relative to underground injection wells focused exclusively on permitting and well abandonment activities. The audit also assessed operations related to records and information management. We examined data primarily from January 2010 to March 2011.

As part of its regulatory role, the board adopted administrative rules detailing technical and scientific standards. This audit did not assess compliance with these technical and scientific standards.

Division staff coordinates with a number of federal and state agencies including the Bureau of Land Management, Environmental Protection Agency, Department of Natural Resources and Conservation Mineral Management Bureau, Department of

Revenue, and Department of Environmental Quality. Department of Revenue uses oil and gas well production data maintained by the division during tax audits of oil and gas production companies. Division staff notifies Department of Environmental Quality if air quality permits might be necessary and alerts staff of petroleum spills. The audit reviewed coordination with other state agencies.

## **Audit Objectives**

To complete this audit, we developed the following objectives:

1. Determine if the Board of Oil and Gas Conservation has effective controls in place to enforce oil and gas conservation laws and administrative rules.
2. Determine if controls are designed to promote integrity of data maintained on the Oil and Gas Information System.

## **Audit Methodologies**

To meet audit objectives, the audit included these methodologies:

- ◆ Reviewed applicable statutes, administrative rules, policies and procedures.
- ◆ Interviewed board members, observed board meetings, and reviewed related documents.
- ◆ Interviewed division management and staff at division offices in Billings, in Helena, and at field offices located in Shelby, Plentywood, Sidney, and Glendive.
- ◆ Accompanied field staff on inspections of oil and gas drilling facilities.
- ◆ Reviewed and analyzed division records including drilling permits, inspection records and notices of violation.
- ◆ Interviewed industry stakeholders including a representative of the Montana Petroleum Association and industry field staff.
- ◆ Reviewed board information.
- ◆ Contacted staff to discover practices used by the North Dakota Industrial Commission and Texas Railroad Commission.
- ◆ Reviewed statutes, administrative rules and policies from other states, including Arizona, North Dakota, Texas, and Wyoming.
- ◆ Interviewed staff from state agencies that coordinate activities with the board including Department of Revenue and Department of Environmental Quality.
- ◆ Interviewed division staff responsible for management of electronic data, reviewed related documentation, and contrasted data management operations to industry best practices.
- ◆ Reviewed statutory records management requirements.
- ◆ Interviewed staff from the division and Secretary of State's Office regarding records management practices, and reviewed related records including the records retention schedule and contracts for records scanning services.

## **Management Memorandum**

A management memorandum is a written notification to an agency for issues that should be considered by management, but do not require a formal agency response. We issued a management memorandum to the board addressing human resource management controls including position descriptions, performance evaluations and staff meetings. The memorandum also addresses public records management.

## **Report Contents**

The remainder of this report includes a background chapter followed by chapters detailing our findings, conclusions, and recommendations in the following areas:

- ◆ Chapter III – Inspection Processes.
- ◆ Chapter IV – Enforcement Processes.
- ◆ Chapter V – Data Management.



## Chapter II – Background

### **Introduction**

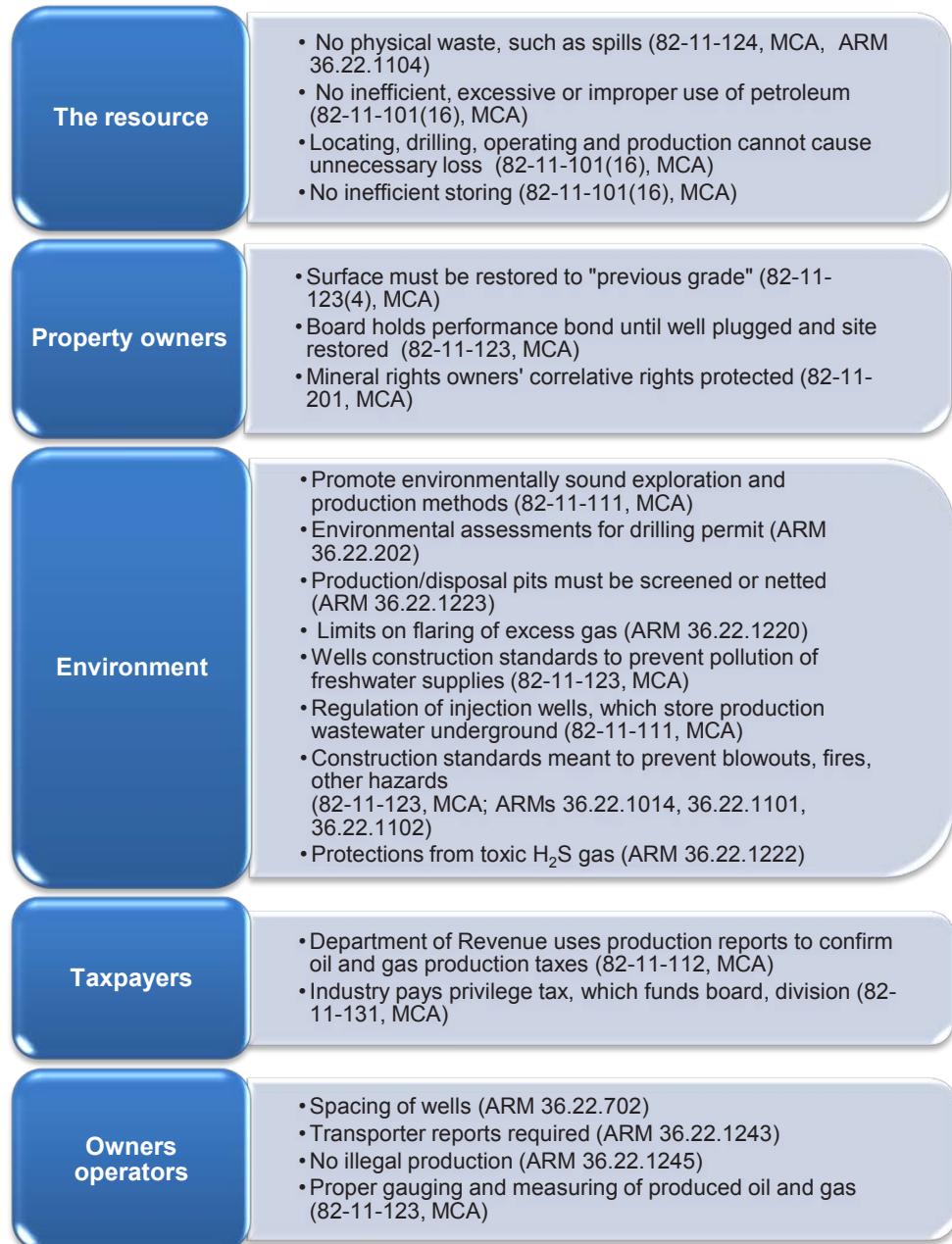
The Board of Oil and Gas Conservation (board) and the Oil and Gas Conservation Division (division) administer Montana's oil and gas conservation laws. These laws are designed to promote conservation, prevent waste, and require measures be taken to prevent contamination or damage in the recovery of these resources through regulation of exploration and production of oil and gas. This chapter presents background information about the statutory authority and composition of the board, division responsibilities, program funding, and a general overview of stages of well development and associated regulatory activities.

### **Statutory Authority of Board**

The board is statutorily established in §2-15-3303, MCA, and is responsible for administering statutes found in Title 82, Chapter 11. Statutes stipulate board composition. It is a seven-member board consisting of three industry representatives with at least three years' experience in the oil and gas industry; two landowners from oil- and gas-producing counties, one who owns both surface and mineral rights and one landowner who does not own the mineral rights. In addition, one member must be an attorney. The Governor appoints board members to four-year terms. The board holds six meetings annually, mostly in Billings.

The board functions as the governing body over the regulation of the oil and natural gas exploration and development operations. The board is the policy setting and rule making entity. The statutory responsibilities and actions of the board are designed to help protect the oil and gas resource and the environment. Board actions also impact many stakeholders including property and mineral right owners, industry representatives, oil and gas operators, and taxpayers. The following figure details areas impacted by the board's statutory mandate.

Figure 1  
**Impacts of Board of Oil and Gas Conservation Mandates**

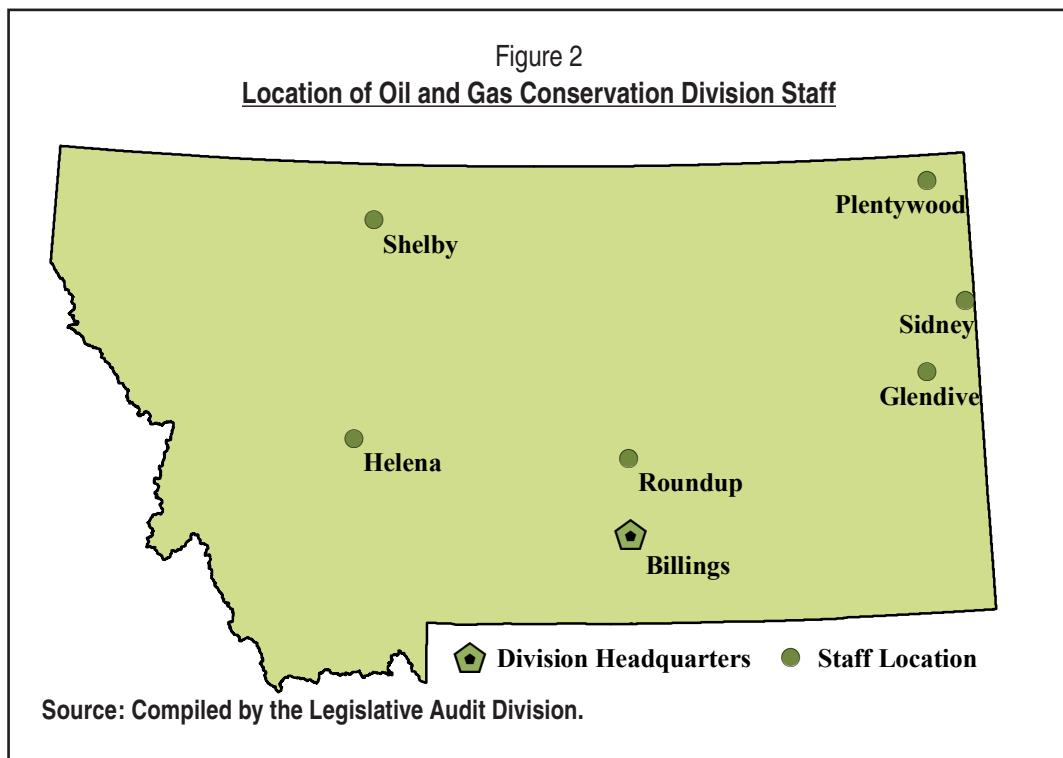


Source: Compiled by the Legislative Audit Division from Montana Code Annotated and Administrative Rules of Montana.

## Division Responsibilities

The board has statutory authority to hire its own personnel and is currently authorized 21.5 FTE, of which 16 FTE are filled. The board employs staff with a mix of professional, technical, and administrative skills. Employees include a petroleum engineer, geologist, underground injection well program coordinator, chief field inspector, field inspectors, administrative assistants and board support staff. While overall management and policy direction for the division comes from the board, the board appoints a division administrator to manage daily activities of staff.

Division headquarters are in Billings. There is a field office in Shelby and an administrative office in Helena. Field inspectors are located throughout the oil and gas producing areas of the state, working either out of the Shelby office or from home based offices. The following figure illustrates the locations of division staff.



The board sets policy and division staff implements it. The division is responsible for day-to-day functions. Division staff interacts with the industry on a daily basis and monitors industry compliance with laws and associated administrative rules. The division's primary responsibilities include:

1. Issue drilling permits
2. Classify wells

3. Assist in establishing well spacing units and reservoir pooling orders
4. Inspect drilling, production, and seismic operations
5. Investigate complaints
6. Perform engineering studies
7. Determine incremental production for enhanced recovery and horizontal wells to implement the tax incentive program for those projects
8. Operate the underground injection control program
9. Oversee plugging of orphan wells
10. Collect and maintain complete well data and production information

In addition, staff collects required industry reports, offers technical advice and facilitates board decisions. Division staff are responsible for monitoring regular and underground injection oil and gas wells. There are approximately 16,700 regular wells and 900 underground injection wells in the state. Most division activities relate to regular wells. In 2010, the staff processed 330 drilling permits and conducted 4,430 inspections.

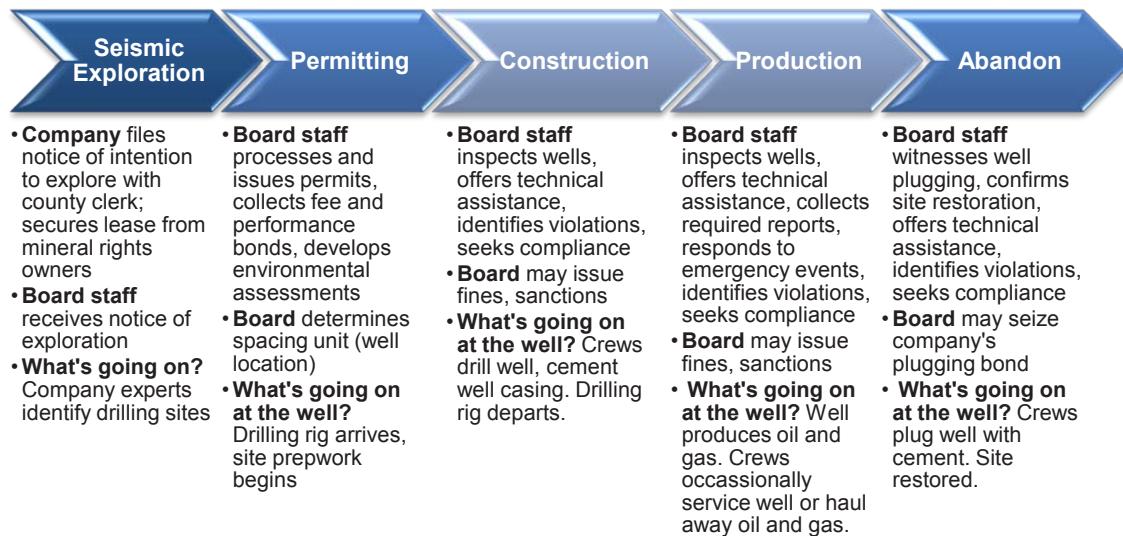
## **Program Funding**

The primary funding source for board and division operations is the privilege and license tax paid by oil and gas operations. Statutes authorize the board to set privilege and license taxes up to 3/10 of 1 percent of the market value of crude petroleum and natural gas produced, marketed and stored in the state. The privilege and license tax is currently set at 30 percent of the maximum allowed by statute. In addition, the board is statutorily authorized to establish an annual fee on underground injection wells. Statutes provide for a maximum \$300 annual operating fee for each underground injection well. The board set the fee at \$200. Other funding sources include drilling permit fees and a federal EPA grant used to administer the underground injection control program. In fiscal year 2011, the board's operating budget was \$2.3 million.

## **Regulatory Stages of Well Development**

The board is notified when a company begins the exploratory phase of well development. However, the board's regulatory process essentially begins when a company applies for a drilling permit. Regulatory oversight does not end until the well is abandoned, which is done at the end of its useful life. Throughout the development, production, and abandonment phases, division staff are responsible for monitoring operator compliance with statute and administrative rules. In addition, staff offers technical expertise to producers and the public as needed. Figure 3 illustrates the stages in well development along with regulatory responsibilities of the board.

Figure 3  
Stages of Well Exploration and Development



Source: Compiled by the Legislative Audit Division.

## Conclusion: Regulatory Activities Could Be Improved

This audit measured aspects of the board's performance at every step of the regulatory process. Audit work revealed that while the board administers permitting, report collection, and well abandonment stages adequately, controls for inspections and enforcement activities could be improved. The following figure illustrates operational areas that function well and areas that could be improved.

Figure 4  
Board of Oil and Gas Conservation Regulatory Processes Could Be Improved



Key:



Source: Compiled by the Legislative Audit Division.

The remainder of the report discusses the results of our audit work and presents findings and recommendations for improvement.



## Chapter III – Inspection Processes

### Introduction

Our primary audit objective was to determine if the Board of Oil and Gas Conservation has effective controls in place to enforce oil and gas conservation laws and administrative rules. During the audit we discussed inspection processes and requirements with division management and staff, accompanied staff on field inspections, reviewed inspection related documents, and examined applicable statutes, administrative rules, and board policy. In addition, we compared Montana's inspection processes to those of other states' oil and gas regulatory entities.

Audit work revealed the inspections process could be strengthened through more active management and a formalized approach. Taking this approach would help ensure an effective inspection process and better use of division resources. This chapter discusses audit findings and recommendations related to the following areas:

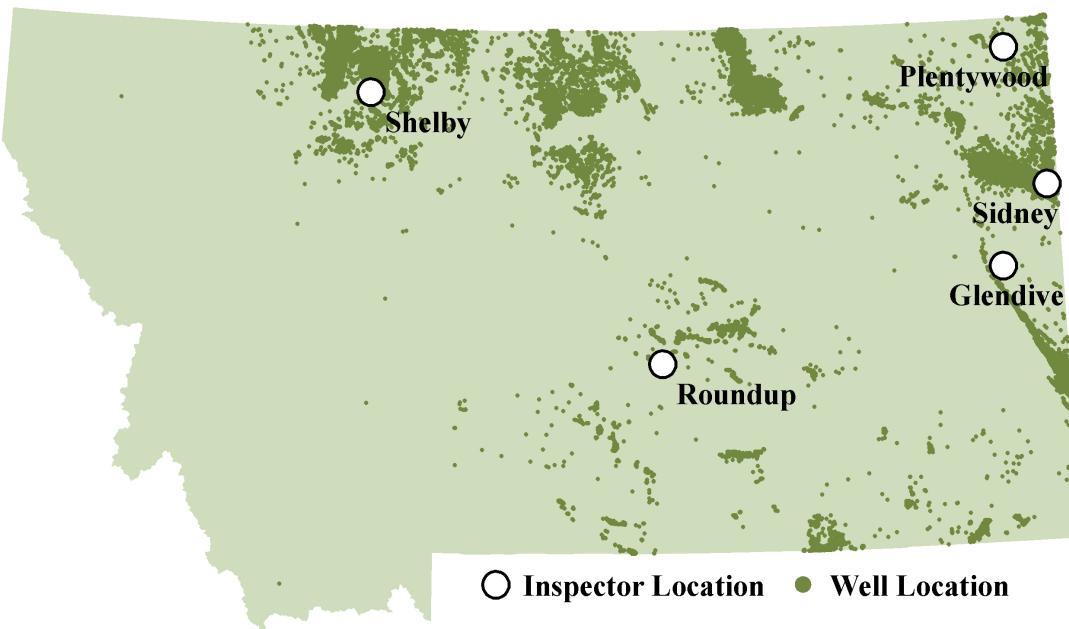
- ◆ Inspections fill integral role
- ◆ Defining inspection priorities
- ◆ Developing formal inspection policies and procedures
- ◆ Improving inspection activity documentation

### Inspections Fill Integral Role

Inspections are an integral part of the board's regulatory process. Inspections are necessary to ensure oil and gas exploration and development operations adhere to statutory requirements and administrative rules. The division relies on a staff of six to conduct field inspections and monitor 17,600 active wells. Through visits to the oil and gas fields, inspectors examine things such as drilling and production equipment, safety-related gear, and surrounding areas for evidence of leaks or other environmental hazards. Inspectors typically work out in one of the state's 395 oil-and gas-producing fields. Most field inspections are random although operators can schedule others. One such scheduled visit is a mechanical integrity test, which verifies whether an injection well is leaking.

Field inspectors conducted over 4,430 inspections and identified 501 inspection deficiencies or violations in 2010. Figure 5 illustrates location of inspectors and oil and gas wells.

Figure 5  
Distribution of Oil and Gas Wells and Locations of Inspectors



Source: Compiled by the Legislative Audit Division from board records.

## Defining Inspection Priorities

Division management can influence an inspector's priorities by requesting an inspector visit a particular site. However, division management has not defined priorities for inspectors nor provided formal guidance. As a result, inspection priorities differ greatly between the various inspectors with little agreement as to what the priority or high risk areas for inspections are. In addition, inspector priorities may not align with the chief field inspector's stated priorities for the inspection program. Inspectors said they tend to focus their efforts on "problem operations" which is based on the inspector's previous experiences. When asked about their most important inspections, inspectors indicated different priorities. Table 1 indicates the priorities of four inspectors and illustrates how these top priorities differ.

Table 1 <u>Analysis of Inspector Priorities</u>			
Inspector A	Inspector B	Inspector C	Inspector D
Spills	ID signs	Plugging	Surface casing
Plugging	Leaks or spills	Surface casing	Plugging
Surface casing	Drilling pits	Problem wells	Production issues

**Source: Compiled by the Legislative Audit Division.**

As the prior table illustrates, inspector priorities vary greatly, and no inspectors gave priority to responding to public or industry complaints or notices. Some of these differences may be due to regional demographics such as age of the oil well field or the phase of well production.

## Risk-Based Approach Can Be Used

Other states' oil and gas regulatory agencies have taken steps to formalize inspection priorities and use a risk-based inspection approach for managing their inspection processes. For example, the regulatory commission in one state prioritizes complaints and notices it receives from the industry or the public regarding possible incidents of pollution and public endangerment to ensure the highest risk incidents receive the quickest response. Examples of first priority incidents include emergency events, blowouts, major spills, accidents, and injuries. In addition, a formal risk-based approach is used to identify wells for inspection that pose a greater risk based on factors such as:

- ◆ Compliance history of operator and at the particular well site
- ◆ Length of time since last inspected
- ◆ Whether well is in an environmentally sensitive area
- ◆ Age of facilities and equipment
- ◆ Nature of activity

In addition, a formal approach is used for scheduling periodic inspections of oil and gas wells to help ensure all wells are inspected on a regular basis.

In Montana, the division's Underground Injection Control (UIC) Program adopted a risk-based approach to prioritize and schedule inspections of underground injection wells. The program manager monitors which injection wells require periodic inspection and notifies staff when inspections are due.

## Current Approach of Montana Program

Our review of the Oil and Gas Information System (system) records found:

- ◆ The division has not inspected 58 percent of active wells in at least five years.
- ◆ Four wells were inspected more than 20 times.
- ◆ Twenty percent of wells with an identified inspection deficiency or violation did not get a follow-up inspection.

Without an organized approach, inspection inconsistencies may compromise inspection and enforcement efforts. If inspectors do not inspect wells, violations may go undetected. Because this competitive industry requires a level playing field, established priorities would help ensure consistency in inspections.

## Need to Establish Formal Risk-based Inspection Priorities

The division needs to develop tools to help inspection staff plan activities. While inspector discretion and responsibility for prioritizing their own workload is important, an organized approach to inspections would improve inspection and enforcement efforts. Section 82-11-111, MCA, requires the board to investigate to determine whether waste exists or whether other factors exist that justify any action by the board. This section also requires measures be taken to prevent contamination of or damage to surrounding land or underground strata caused by drilling operations and production. To ensure the board meets its statutory mandate and devotes its limited resources on inspecting the wells that pose greater risk, the division should develop a process to prioritize inspections. While inspecting every well every year is not realistic, a formal approach to inspections will provide risk-based priorities for inspectors to attain maximum effectiveness while ensuring fairness.

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### **RECOMMENDATION #1**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, develop a formal risk-based inspection approach that establishes inspection priorities.*

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## **Formal Inspection Policies and Procedures Should Be Developed**

Inspectors typically work out of their homes with minimal supervision. They travel directly to inspection sites, often in remote locations. While this decreases the amount of time employees must use to travel to the locations they regulate, we found the division

could improve its remote management and oversight of inspectors. Management does not provide inspectors with documented inspection policies or procedures relative to non-UIC wells or regularly meet with remote staff, hampering communication of informal policies and practices. Formalized policies or procedures could detail what inspectors should be examining as they inspect well sites, equipment, facilities and surrounding areas.

## **Other Programs Have Formal Policies and Procedures**

Documented policies and procedures are an important element of guiding staff in performing job duties. State of Montana policy states agency managers should establish and maintain a coordinated set of policies and procedures to ensure efficient and effective operations. Oil and gas regulatory operations in other states have formal documented policies and procedures for their inspection processes. Examples of procedures include:

- ◆ Assigning and conducting on-site inspections
- ◆ Recording inspection activities
- ◆ Responding to complaints and timelines for responding
- ◆ Following up to identified field violations
- ◆ Quality control review

The division's UIC Program has formal policies and procedures for UIC well inspections. The Environmental Protection Agency developed a detailed training manual relative to specifics about conducting inspections of underground injection wells including inspection procedures, plugging, mechanical integrity testing, other well tests, and enforcement procedures. The division adopted this manual as its formal policy for UIC well inspections.

## **Formal Inspection Policies and Procedures Would Be Beneficial**

Without documented policies and procedures for the division's inspection program for non-UIC wells, it is difficult for division management to ensure inspections are standardized and minimum requirements met. The lack of documented policies and procedures contributes to inconsistencies in the inspection process and ultimately limits the effectiveness of field inspections. Without formalized policies and procedures, the board also runs the risk of a lower level of transparency of its regulatory activities to the public and the industry.

The division established formal policies and procedures for the UIC program and should do likewise for the inspection program for non-UIC wells. Documented

policies and procedures would guide staff in performing inspection processes, help to improve consistency of inspections, and provide a valuable tool to inspection staff who work remotely with little day-to-day supervision.

---

#### **RECOMMENDATION #2**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation:*

- A. *Develop formal policies and procedures pertaining to the inspection program.*
  - B. *Ensure these policies and procedures are applied consistently by staff.*
- 

### **Inspection Activity Could Be Better Documented**

During the audit, we examined the process used to document inspection activities including initial field inspections, follow-up inspections, noncompliance by well operators, and issue resolution. We found processes could be improved in these areas:

- ◆ Documenting inspections
- ◆ Documenting operator noncompliance
- ◆ Tracking compliance status and issue resolution

The following report sections discuss these areas in detail.

### **Documenting Inspections**

Staff uses a paper inspection form to record inspection observations, details and results. The inspection form includes fields for well name and number, date of inspection, notes about the inspection, type of inspection, checkbox indicating whether or not a violation occurred, and notes about any identified failed items or violations. We reviewed 101 inspection forms completed in 2010 to examine adequacy and consistency of inspection documentation. Our audit work found concerns with documenting inspections, including incomplete, inconsistent and inaccurate inspection forms. Examples include:

- ◆ Ten percent (10 of 101) of sampled inspection forms were missing the inspection type. Inspection types identify the nature of an inspector's visit, such as routine, construction, emergency response, plugging witnessed, complaint, etc.
- ◆ Six percent (6 of 101) of sampled inspection forms were recorded on an alternative inspection form. This alternative form does not contain the same data fields as the primary inspection form.

Subsequent interviews revealed other issues with documenting inspections. Staff uses at least two other, alternate forms to record inspections. Staff refers to these forms as dailies and weeklies. In addition, managers do not require documentation of every inspection and not all inspections are entered into the division's information system.

## **Documenting Operator Noncompliance**

When staff identifies noncompliance with statute or administrative rule, they record details of the violation on the inspection form and provide a copy to the well operator. The division refers to infractions of administrative rules as either deficiencies or violations. The division requires certain information be recorded when documenting noncompliance. For example, administrative rule should be cited. The inspection form also contains fields to record details about the failed items or violation, date operator was notified about noncompliance, date remedy is required by, and if a photo was taken.

During audit work, we reviewed a sample of 27 inspection forms where inspections performed in 2010 identified noncompliance issues. Our audit work found concerns with documenting operator noncompliance. For example,

- ◆ Forty-eight percent of inspection forms did not cite the administrative rule the operator violated.
- ◆ Forty-four percent of inspection forms did not note the date the operator was notified of noncompliance.
- ◆ Eighty-one percent of inspection records did not contain a photo of the noncompliance.

Our audit work revealed other concerns with documenting operator noncompliance. Staff did not record detailed notes regarding identified noncompliance or clearly indicate they notified the operator. We also found inspectors used an alternate form to document noncompliance for 15 percent (4 of 27) of the records reviewed. This alternate form is problematic as it lacks most of the fields from the regular form. We also noted division staff do not use fail codes on noncompliance notices. A fail code is a data field meant to specifically identify the nature of the noncompliance.

## **Tracking Compliance Status and Issue Resolution**

Audit work revealed it was difficult to track if or when an operator addressed noncompliance and whether division staff conducted follow-up inspections to ensure compliance. Records regarding compliance status are often incomplete and out dated. For example, records contained deficiencies or violations that occurred years ago and it was unclear whether these compliance issues were resolved. We also found the division currently uses many different tracking mechanisms to monitor and document

compliance status and resolution. As a result, compliance status is not documented in one place nor is recorded data consistent.

## **Other Documentation Practices**

Oil and gas regulatory agencies in other states established procedures to ensure inspections are consistently and thoroughly documented. For example, one state has unique inspection forms for specific types of inspections such as responding to complaints, examining cement casings, and inspecting a plugging operation. These forms provide a basis for thoroughly and consistently documenting inspections. In addition, management takes steps to monitor and ensure staff properly document inspections and use forms correctly.

Other states' also established practices to ensure noncompliance issues are well documented and compliance status is tracked to ensure outstanding noncompliance issues are addressed and resolved. These states have detailed written guidance that addresses how to document noncompliance, determining severity of noncompliance, need for follow-up inspections, issuing subsequent notices, and enforcement referral procedures. For example, one state's policy stipulates documentation must include exact location and identification of site where violation exists, description of the violation with appropriate citations (statute, rule or policy), brief description of the necessary corrective action, and a deadline by which corrective action must be completed.

## **Inspection Activity Documentation and Tracking Should be Standardized**

The board needs to adopt the best practices of other states' regulatory agencies and standardize how staff document inspections and noncompliance, and develop a unified means to track status of operator compliance. Such processes would improve consistency and thoroughness of documentation, and help ensure division staff is performing inspection activities as desired. As part of standardizing how inspection activity is documented, management should address the number of different forms staff currently uses to document activities, and designate the official record to be used to document inspections and noncompliance. The division needs to standardize what information staff must record during inspections and what data to record relative to operator noncompliance. The division already has the tools to better track operator noncompliance. The division's UIC Program routinely tracks compliance status and issue resolution through its use of the Oil and Gas Information System. The division should apply this tracking tool to the entire inspection program.

Standardizing inspection activity documentation and establishing a unified process to track compliance status will strengthen the division's inspection process, ultimately creating a more-effective inspection program.

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**RECOMMENDATION #3**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, standardize how inspections and compliance activities are documented and tracked.*

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# Chapter IV – Enforcement Processes

## Introduction

Our primary audit objective was to determine if the Board of Oil and Gas Conservation has effective controls in place to enforce oil and gas conservation laws and administrative rules. While the prior chapter focused on inspection processes, this chapter focuses on board and division enforcement actions taken to resolve noncompliance identified during inspections. During the audit we reviewed enforcement related statutes, administrative rules and documented procedures. We analyzed a sample of enforcement related records and discussed enforcement activities with board members and division staff. We also compared the board's enforcement processes with those used by other states' similar regulatory bodies.

The board has fostered a culture of working with the industry and seeking compliance through collaboration. It is a balancing act between promoting exploration and development of oil and gas resources along with ensuring the industry complies with statutes and administrative rules designed to:

- ◆ Prevent waste and ensure efficient recovery of the resource
- ◆ Prevent harm to the surface or underground resources
- ◆ Protect rights of lease holders and mineral owners

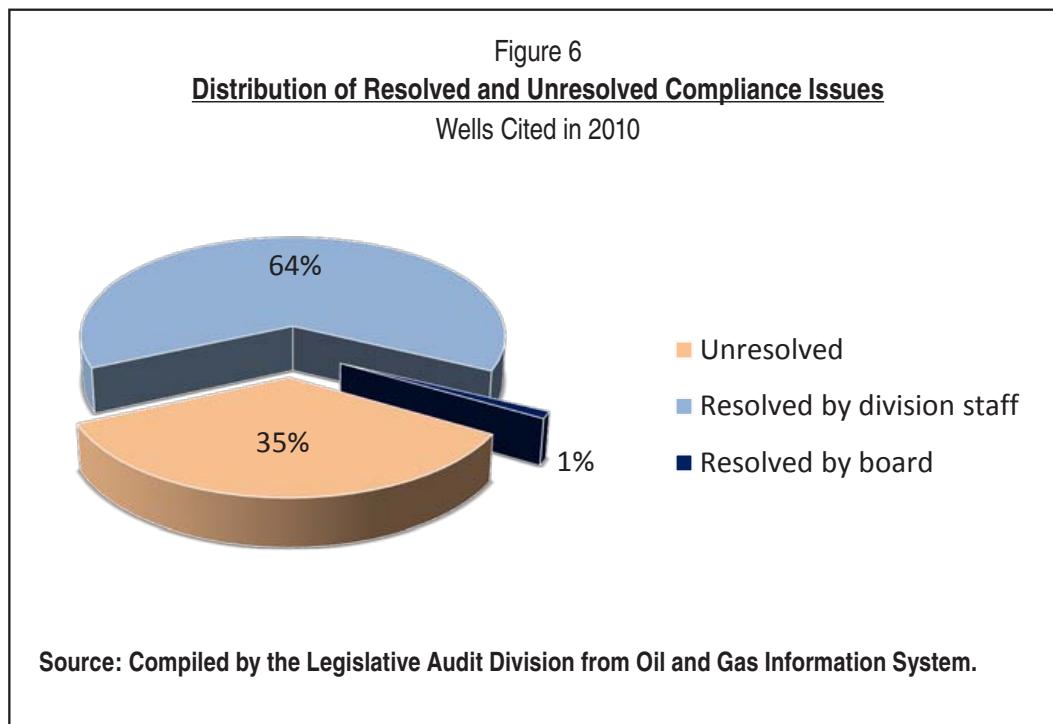
By using a collaborative approach, industry typically complies with requirements enacted by the Legislature and the board. However, we found the board could improve upon its enforcement approach by defining and clarifying some of the enforcement strategies it developed. This chapter discusses audit findings and recommendations related to the following areas:

- ◆ Current enforcement activities
- ◆ Application of existing compliance timelines
- ◆ Additional compliance timelines needed

## Current Enforcement Activities

When division inspectors identify noncompliance by an operator, they attempt to work out the problem directly with the operator. This involves visits to the well site or phone calls to the operator. Inspectors said they usually give operators at least three chances to comply. If the noncompliance issue remains unresolved, inspectors transfer it to the chief field inspector. The chief field inspector follows up with more formal phone calls and letters to the operator, again seeking compliance. If noncompliance is not addressed, a violation notice is prepared and the board holds a show cause hearing.

We analyzed data within the Oil and Gas Information System to determine what proportions of noncompliance issues were resolved or unresolved. Figure 6 demonstrates the proportions of resolved and unresolved noncompliance issues.



As illustrated in Figure 6, division data shows 35 percent of noncompliance issues recorded on the division's information system have not been resolved. According to division management, some of these unresolved issues may be due to record-keeping discrepancies, as not all enforcement data is recorded on the Oil and Gas Information System.

Our review of enforcement related records and outcomes revealed current enforcement strategies are not always successful and field violations remained unresolved. Statute, administrative rule and division practices provide a framework for the enforcement process. The board has adopted some compliance timelines and a penalty policy to provide additional means of encouraging operator compliance. While a general enforcement framework is in place, enforcement processes could be strengthened.

### **Application of Existing Compliance Timelines**

The board established some timelines in administrative rule with which oil and gas well operators must comply. Administrative rules provide compliance timelines in six instances. Operators must:

1. Remove all hydrocarbons from earthen pits within 10 days after drilling.

2. Pits with a high proportion of dissolved solids must be fenced within 90 days.
3. Provide immediate notice of a spill of more than 50 barrels of oil or water. Operators must file a written report within five days.
4. Remove oil, water, and contaminants from certain pits within 48 hours.
5. Perform mechanical integrity tests on injection wells every five years.
6. Clean up spills “promptly.”

Audit work revealed the division is not consistently applying these mandated timelines. We found one timeline in particular interpreted differently; the timeline relative to cleaning up spills “promptly.” We reviewed eight spill violations and found the following timelines cited on the notices of violation:

- ◆ “Immediate” (4 violation notices)
- ◆ “When the battery dries up” (1 violation notice)
- ◆ 5 weeks (1 violation notice)
- ◆ 2 months (1 violation notice)
- ◆ No deadline (1 violation notice)

Operators may view these disparities in application of timelines as inequitable or unfair. Requiring operators to correct similar violations within similar timeframes would give greater assurance that the board and division treat all operators equitably.

### **Additional Compliance Timelines and Guidance Needed**

As discussed in the previous section, administrative rules contain few specific compliance timelines for operators to adhere to. Although operators are required to follow and comply with nearly 100 administrative rules, many of which relate to high risk areas involving safety or environmental protection, only five compliance timelines currently exist. In addition, there are no documented policies or guidance that addresses the amount of time division staff should allow operators to correct noncompliance issues. There is no formal guidance on whether division staff should conduct follow-up inspections to confirm compliance or timeframes for conducting follow-up inspections.

### **Other States use Comprehensive Enforcement Approach**

Other states use a more defined approach to encourage operator compliance, including more formal timelines that operators must follow and formal guidelines for staff to follow when addressing enforcement issues. For example, one state established detailed policies to serve as a framework for addressing noncompliance issues and to guide

inspection staff when issuing violation notices and seeking operator compliance. These policies incorporate specific timeframes on how long to give operators to correct violations. Inspectors must cite these timelines on violation notices provided to operators. Policy also establishes timelines for inspectors to conduct follow-up inspections to confirm compliance. All timelines are based on the severity of the violation, with major violations having shorter timelines.

## **Improving Enforcement Strategy**

The board should take steps to build upon and strengthen its current enforcement strategy. It needs to ensure staff consistently applies operator compliance timelines developed by the board and stipulated in administrative rules. The board should expand the use of compliance timelines adopted through administrative rule in order to maximize their efforts and more closely align with the practices of other states. In addition, the board needs to establish formal policy that provides corrective action guidelines and specifies the amount of time staff should allow operators to come into compliance. Policy should also define when staff should complete follow-up inspections and ensure staff consistently follows this policy. The board may want to consider the severity of violations when developing the policy. Taking these steps will strengthen the enforcement strategy, improve consistency of enforcement actions, and help decrease the backlog of unresolved noncompliance issues.

---

### **RECOMMENDATION #4**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, strengthen enforcement activities by:*

- A. *Ensuring compliance with existing administrative rule timelines.*
  - B. *Identifying if additional corrective action timelines are needed.*
  - C. *Establishing formal guidelines for corrective action activities.*
-

# Chapter V – Data Management

## Introduction

The Board of Oil and Gas Conservation is a major repository of technical and administrative information about oil and natural gas producers conducting exploration and development activities in the state. A number of agencies and parties rely on this information, including the board and its staff, Department of Revenue, and industry representatives. Information exists in electronic and hard copy formats. This chapter addresses the following objective:

- ◆ Determine if controls are designed to promote integrity of data maintained on the Oil and Gas Information System.

Audit work revealed the board generally has controls in place for managing electronic data. However, the board could strengthen its data processes. This chapter presents audit findings and recommendations relating to data management.

## Oil and Gas Information System Controls

The Oil and Gas Conservation Division maintains much of its key program information in the Oil and Gas Information System (system), a database used to store general well data, production information, and division activities such as permits, inspections, and complaints. Both internal and external users access the system. Internally, the data supports division business processes including tracking general well data (such as ownership, bonding, location, construction, production, and restoration), issuing permits to drill, tracking underground injection wells, reporting field inspections and violations, and adjudicating complaints. Access to internal data is through an application residing on division servers. Externally, operators use the system to establish exploration locations, examine production quantities of existing wells, and identify ownership interests of individual oil or natural gas wells. Furthermore, the Department of Revenue uses production and well information from the system for tax auditing purposes. External access is through a website that stores automatically replicated data from the main data system.

## **Strengthening System Management Controls**

Data integrity allows a user confidence that relied on data is correct and controls generally prevent unauthorized or accidental changes. Through interviews, observations, and queries of the system, we evaluated controls over the system including user access, data entry, change management, and event logging. In general, audit work revealed system controls could be strengthened. Audit work identified three areas where overall system and data integrity risk is elevated and can be lowered by strengthening controls:

- ◆ Segregation of duties
- ◆ Security planning
- ◆ Disaster recovery planning

The remainder of this chapter discusses these areas.

## **Segregation of Duties**

Agency management is generally responsible for information technology (IT) system data integrity controls. For the oil and gas system, that responsibility resides with one person, the system manager. Specifically, the system manager:

- ◆ Develops, tests, and implements modules and changes.
- ◆ Troubleshoots and corrects any operational issues.
- ◆ Sets up and manages security controls.
- ◆ Completes system structural changes such as changes to the system tables and reports.
- ◆ Changes data which cannot be changed through the system application.

No other division staff currently has the knowledge needed to perform these system management responsibilities. As a result, there is no segregation of system management duties and one individual performs incompatible duties, such as setting up and reviewing user access. Adding to these concerns is the fact very little is documented about system controls, operations, and maintenance; all of these elevate system risk.

State IT Policy requires a segregation of duties between individuals to prevent unauthorized activity. It is an important tool for preventing unauthorized activity in an information system. It is a process for assigning various system responsibilities to a number of separate users. Such segregation allows system management activity to occur with verification of each step's completion by different personnel and lowers the risk a single user will make undetected changes to the system. Without a segregation of duties, the system manager could potentially make system data or programming changes without authorization.

The Oil and Gas Information System is important to both internal and external users. The division should take steps to reduce the current level of system risk by establishing a process that ensures segregation of duties over management of this system. A common step taken to strengthen controls is to assign monitoring duties to another staff person. Monitoring another user's system activity is considered a preventative segregation of duties. For example, the division administrator or other personnel could approve and regularly review user account access or approve and review data changes. This would allow segregation through involvement of personnel other than the system manager.

#### **RECOMMENDATION #5**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, comply with state information technology policy to ensure a segregation of duties over management of the Oil and Gas Information System.*

### **Security Planning**

An IT security plan provides an overview of a system's security requirements and describes the controls in place or planned for meeting those requirements. Security plans typically address items such as user access, password protection, and tracking system activity. The system security plan also delineates responsibilities and allowable actions of all individuals who access the system. State law (§2-15-114 (1), MCA) requires agencies to develop and maintain written internal policies and procedures to ensure security of data. An agency security plan should contain or refer to these security policies and procedures. Without this guidance, controls may not be applied or applied incorrectly, increasing the risk data integrity may be affected.

Division staff, Department of Revenue, and oil and gas industry companies consider data integrity as vital. As a result, security controls must be in place to maintain data integrity. Since the security plan documents both the security needs of a system and the controls in place to meet those needs, it is a guiding document to putting security controls in place. We determined the division does not have any documented security plan in place for the system.

The division's lack of a security plan increases the risk system controls do not work as designed. For example, although the division requires use of passwords to access the system, they do not apply the state's IT password policy in the system. A typical security control is a difficult to guess password. To make a password more difficult, it should consist of a nonsensical combination of lower and upper case letters, numbers, and symbols.

Easy to guess passwords provide a weakness potentially allowing an unauthorized individual access to the division's network. This access could allow the individual to place unauthorized or illegally obtained data and software on the network, make unauthorized changes to system data, or use the access to connect to, or bypass, other state network defenses such as firewalls. There are 12 user accounts with access to the system and five have the ability to add, change, or delete data in the system. Based on what these five accounts can do, they are most at risk; therefore, strong password protection is even more important.

If an Oil and Gas Information System security plan existed as guidance to the access process, the division would have identified the need to meet the state's IT password policy. System management indicated a security plan has not been a priority.

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#### **RECOMMENDATION #6**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, comply with statute and state information technology policy by:*

- A. *Developing, documenting, and maintaining an Oil and Gas Information System security plan.*
  - B. *Enforcing, through automated methods, the state information technology password policy for the Oil and Gas Information System.*
- 

## **Disaster Recovery Planning**

Business continuity is a series of processes implemented to ensure continued availability of services and resources. An important element of business continuity is disaster recovery planning. Disaster recovery planning is a set of steps, communications, and responsibilities to execute if an interruption of services occurs. An effective plan is documented and designed to quickly and completely reestablish a system or service following a service interruption or disaster resulting in minimum loss to the organization. One key to recovery planning is backups; the division maintains and tests several backups, including copies kept at an offsite location.

State IT policy requires agencies to follow a security framework issued by the National Institute of Standards and Technology. Institute standards require development, documentation, maintenance, and enforcement of a contingency (disaster recovery) plan. Although the division has several backups, there is no documented recovery plan as management stated there is not enough risk to require development of a plan. Only the system manager knows how to restore the system in the event of a disaster. If the system manager was not available to restore the system, the responsibility would fall on other division managers, who do not have the level of knowledge required to restore the system. When questioned about the lack of formal disaster recovery plans, management stated they could refer to one of three sources to assist in restoring the system:

- ◆ One of the division's IT vendors
- ◆ Department of Natural Resources and Conservation's IT Bureau
- ◆ Another state with a similar system

However, using any of these methods is problematic because there is no documented disaster recovery plan. Even if the source was familiar with this system or disaster recovery in general, without a documented recovery plan, system recovery may leave the system inoperative for two to three weeks, especially if restoration required equipment replacement. Although this would not prevent division staff from performing their required duties, it would make job performance more difficult, less timely, and more costly as the division would have to rely on hard copy records. Furthermore, users outside the division have stated loss of the system would be critical if not available for more than four or five days. For example, the Department of Revenue cross matches Oil and Gas Information System production data against oil and gas company tax data. The cross match is a required Department of Revenue function and is a time sensitive process.

In general, an IT system disaster recovery plan should be created while considering the agency's mission and how the system affects the agency's ability to fulfill its mission. There are many other considerations including:

- ◆ Recovery locations
- ◆ Resources needed (human, financial, and IT resources)
- ◆ Roles and responsibilities
- ◆ Vendor agreements
- ◆ How the plan will be tested

Once planning is complete, the disaster recovery plan is developed and documented based on this information. On a regular basis, recovery is then tested and results recorded to allow evaluation of lessons learned. The plan should be updated, if needed, based on the testing results. The last step would be to evaluate any system changes and adjust the disaster recovery plan if needed. Plan maintenance must occur to keep the disaster recovery plan up to date. Since no recovery plan exists for the system, the division should consider this process while developing their disaster recovery plan.

---

#### **RECOMMENDATION #7**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, comply with state information technology policy by developing, documenting, testing, and maintaining an Oil and Gas Information System disaster recovery plan.*

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BOARD OF OIL AND  
GAS CONSERVATION  
DEPARTMENT OF  
NATURAL RESOURCES  
AND CONSERVATION

BOARD & DEPARTMENT RESPONSE'S

**DEPARTMENT OF NATURAL RESOURCES  
AND CONSERVATION  
BOARD OF OIL AND GAS CONSERVATION**



BRIAN SCHWEITZER, GOVERNOR

OIL AND GAS CONSERVATION DIVISION

**STATE OF MONTANA**

July 26, 2011

Tori Hunthausen, CPA  
Legislative Auditor  
P.O. Box 201705  
Helena, Montana 59620-1705

**RECEIVED**

JUL 26 2011

**LEGISLATIVE AUDIT DIV.**

Dear Ms. Hunthausen:

Thank you for the opportunity to review and comment on the performance audit of the Board of Oil and Gas Conservation's regulatory program. This audit represents many hours of effort on the part of both your staff, members of the Board of Oil and Gas Conservation and the Board's administrative staff. We appreciate the Legislative Audit Staff commitment to this project, including the field office visits and participating in field work with our inspectors during a portion of the one of the harshest winters in recent memory.

The audit report concentrates on the Board's Inspection and Enforcement Program and its Electronic Data Management Program; both important elements of the overall oil and gas conservation and regulatory process in Montana.

As the audit report correctly notes, a number of recommendations for improvement of the regulatory inspection program are already implemented and functioning in the Board's UIC program. The division staff began to transition from the entirely paper -based inspection documentation system to one incorporating the electronic data management system designed for the UIC program. As part of that transition the staff planned to implement virtually all of the aspects used in the UIC program inspection system including more formalized inspection documentation and a more standardized method of preparing data input/tracking information. The division agrees that the risk-based processes established in UIC can be applied to other regulatory activities and measurably improve the program.

**RECOMMENDATION #1**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, develop a formal risk-based inspection approach that establishes inspection priorities.*

**RECOMMENDATION #2**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation:*

- A. Develop formal policies and procedures pertaining to the inspection program.*
- B. Ensure these policies and procedures are applied consistently by staff.*

**RECOMMENDATION #3**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation; standardize how inspections and compliance activities are documented and tracked.*

We concur with recommendations 1 through 3. Although we feel that these three recommendations are basically the same recommendation, we believe the division and the Board can implement the recommendations in same manner: by expanding the UIC program's inspection policies and procedures,

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including setting of inspection priorities, establishing standardized policies and standardizing the associated documentation. The current well inspection program has been successful in achieving compliance with the rules and regulations. It has been responsive to landowner complaints, spills, leaks and other emergencies, and it has provided the Board with reliable on-the-ground information and observations. However, improving the documentation and consistency of inspection results is desirable.

The inspection manual currently used in UIC will need to be reviewed and edited to reflect the broader scope of wells to be inspected. The UIC manual does not include oil and gas production facilities and some aspects of drilling including blow-out prevention and similar mechanical/safety requirements ordinarily inspected during drilling and those sections and other new sections will need to be written. The prioritization will also need editing to reflect more classes of wells than the injection well subset currently addressed. The use of standardized inspection forms is well on its way toward implementation; the outstanding non-standard reports and inspection priorities will be reviewed to determine if separate forms are truly needed as some other states use. It should be noted that the supervision by the Board will be policy direction and guidance to reflect the nature of the Board's meeting schedule and the available time of the minimally compensated volunteer Board.

#### ***RECOMMENDATION #4***

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, strengthen enforcement activities by:*

- A. Ensuring compliance with existing administrative rule timelines.*
- B. Identifying if additional corrective action timelines are needed.*
- C. Establishing formal guidelines for corrective action activities.*

We concur with recommendation #4. Enforcement policies will be reviewed with the inspection policy to incorporate existing timelines into the enforcement policy. Board and staff will review existing rules to determine if additional time lines are needed. Rulemaking to add formal timelines to the administrative rules may require a substantial commitment of both Board and staff time; developing timeline guidance or corrective action timelines can be done more quickly.

The remaining three recommendations relate to the Oil and Gas Data management System. The Board uses the Risk Based Data Management System (RBDMS) along with at least 22 other oil and gas producing states. This system began when the Board applied for UIC primacy as a means to manage UIC data and inspection/enforcement activities. The system has been developed using U.S. Department of Energy grants administered by the Ground Water Protection Council (GWPC). Montana was one of the four original states that volunteered to test and implement RBDMS. RBDMS was expanded to include all of the state data management needs in addition to the UIC program. RBDMS is a modular development system where states propose modifications or improvements and after testing other states may implement the changes without any direct development costs. The division administrator is one of the three members of the RBDMS steering committee; the Board's Petroleum Geologist is a member of the RBDMS technical committee.

The ongoing goal of RBDMS is to provide that states with an oil and gas data management system that uses standard database software (Microsoft SQL Server) and off-the-shelf- data tools (Microsoft Access or Microsoft .NET) in an environment that can be managed by existing technical staff –geologists or engineers – without extensive need for IT staff. GWPC provides RBDMS training and technical assistance from GWPC contracted IT professionals. The RBDMS model has been successful in Montana; the division operates a multimillion dollar database into which it has invested mostly in-kind staff time and less than \$100,000 over a ten year period for customization, server configuration and the production data reporting module that is unique to Montana. The Board and division plans to maintain the RBDMS model; it also intends to implement the recommendations of the audit report, but wishes to express concern about a commitment of personnel and resources that it may not be able to anticipate at this time.

**RECOMMENDATION #5**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation; comply with state information technology policy to ensure a segregation of duties over management of the Oil and Gas Information System.*

We concur with this recommendation; the division administrator has begun approving access and data changes.

**RECOMMENDATION #6**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation; comply with statute and state information technology by:*

- A. Developing, documenting, and maintaining an Oil and Gas Information System security plan.*
- B. Enforcing, through automated methods, the state information technology password policy for the Oil and Gas Information System.*

We concur with this recommendation and believe it can be implemented as described in the audit report without excessive commitment of resources or staff time. The division staff will investigate the security plans used by DNRC and by other RBDMS states.

**RECOMMENDATION #7**

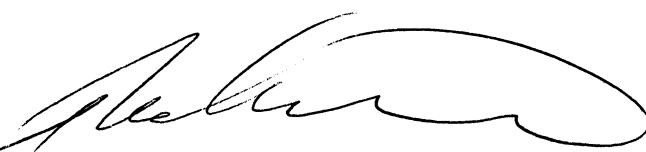
*We recommend the division, under the supervision of the Board of Oil and Gas Conservation, comply with state information technology policy by developing, documenting, testing, and maintaining an Oil and Gas Information System disaster recovery plan.*

The Division and the Board generally concur with this recommendation; however, the Board is administratively attached to the Department which has the same obligation to develop an Information system disaster recovery plan. The Board does not want to commit to doing a disaster plan on its own, but will work with the department as this process moves forward.

Sincerely,



Linda Nelson, Chair  
Board of Oil and Gas Conservation

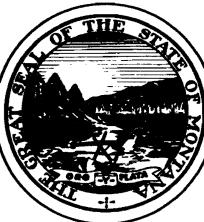


Thomas P. Richmond, Administrator  
Oil and Gas Division



DEPARTMENT OF NATURAL RESOURCES  
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A-5



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August 3, 2011

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AUG 04 2011

LEGISLATIVE AUDIT DIV.

Tori Hunthausen, CPA  
Legislative Auditor  
P.O. Box 201705  
Helena, Montana 59620-1705

Dear Ms. Hunthausen:

Thank you for the opportunity to review and comment on the performance audit of the Board of Oil and Gas Conservation's regulatory program. Although the Board of Oil and Gas is administratively attached to DNRC and the Board has responded under separate cover to the audit, we would like to add a specific response to recommendation number six. IT management is an issue of importance across state government. We will work with BOG to become part of the ITSD state domain.

**RECOMMENDATION #6**

*We recommend the division, under the supervision of the Board of Oil and Gas Conservation; comply with statute and state information technology by:*

- A. Developing, documenting, and maintaining an Oil and Gas Information System security plan.*
- B. Enforcing, through automated methods, the state information technology password policy for the Oil and Gas Information System.*

**We concur with this recommendation. DNRC's Office of Information Technology remains available to work with the BOGC to upgrade and implement the IT system security recommendations. We believe these issues can most effectively be addressed over the long term if the BOGC would become part of the ITSD state domain.**

Again, thank you for this opportunity to respond to the performance audit of the Board of Oil and Gas.

Sincerely,

A handwritten signature in black ink, appearing to read "Mary Sexton".

Mary Sexton  
DNRC Director